even more difficult in such circumstances, especially if profound hypoxaemia exists. Fortunately, at least 30% of patients meeting the criteria for domiciliary oxygen after 1 month of apparent stability no longer met the same criteria after an additional 3 months of observation.[13]

In the last 25 years there have been exciting advances in the management of chronic lung diseases. Therapeutic modalities effective in reducing COPD related impairments have received attention, often in randomised trials. Such is the case for home oxygen therapy which is tertiary prevention. Early detection and intervention on individuals at risk for the late consequences of COPD (secondary prevention) and continuing antismoking campaigns (primary prevention) must not be forgotten. Smoking cessation falls into the latter two categories. Otherwise the cost effectiveness of our tertiary prevention interventions may be jeopardised.

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Authors' affiliations
Y Lacasse, J LaForge, F Maltais, Medical Directors, Respiratory Home Care Programme, Centre de Recherche, Centre de Pneumologie, Hôpital Laval, Institut universitaire de cardiologie et de pneumologie de l'Université Laval, Québec, Canada

Correspondence to: Dr Y Lacasse, Centre de Pneumologie, Hôpital Laval, 2725 Chemin Ste-Foy, Ste-Foy, Quebec, G1V 4G5, Canada; Yves.Lacasse@med.ulaval.ca

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LUNG ALERT

Vitamin D3 and response to glucocorticoids in steroid resistant asthmatics

▲ Xystrakis E, Kusumakar S, Boswell S, *et al.* Reversing the defective induction of IL-10 secreting regulatory T cells in glucocorticoid-resistant asthma patients. *J Clin Invest* 2006;**116**:146–55

This study showed that human IL-10 secreting regulatory T cells (Tregs) inhibit cytokine production from allergen specific Th2 cells in an IL-10 dependent manner. They therefore have the capacity to inhibit the immune response implicated in the pathogenesis of asthma. In steroid resistant asthmatics the failure of T cells to significantly induce IL-10 synthesis in response to dexamethasone was enhanced by the addition of vitamin D3. This restored levels of IL-10 to those seen in steroid sensitive individuals stimulated by dexamethasone alone. Potential mechanisms were explored and it was shown that dexamethasone downregulated glucocorticoid receptor expression, which could be reversed by the addition of vitamin D3. In addition, IL-10 was shown to increase glucocorticoid receptor expression. This suggests potential mechanisms by which poor glucocorticoid responsiveness can be overcome. Oral administration of vitamin D3 in seven steroid resistant asthmatics enhanced the IL-10 response to dexamethasone.

The authors conclude that induction of IL-10 synthesis may contribute to the clinical efficacy of glucocorticoid therapy in asthma. Patients who fail to respond clinically to glucocorticoids also fail to respond ex vivo to induction of IL-10 synthesis and this may be useful as a predictive tool. Induction of IL-10 secreting Tregs in this group of glucocorticoid resistant patients is an appealing therapeutic area. Vitamin D3 enhances IL-10 synthesis in glucocorticoid resistant patients, and there may be potential benefit in administering vitamin D3 in asthmatic patients other than as prophylaxis against glucocorticoid induced osteoporosis.

S Kon
Clinical Fellow, University College Hospital, London, UK; Samanthakon@aol.com